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10/000,148	12/04/2001	Michael K. Maxwell	7707.0020-00	8495

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EXAMINER

STAICOVICI, STEFAN

ART UNIT	PAPER NUMBER
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1732

DATE MAILED: 10/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/000,148	Applicant(s) MAXWELL ET AL.	
	Examiner Stefan Staicovici	Art Unit 1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-100 is/are pending in the application.
- 4a) Of the above claim(s) 22-44 and 67-100 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 and 45-66 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>8/27/02; 9/17/02</u> . | 6) <input checked="" type="checkbox"/> Other: <u>IDS: 10/25/02; 6/29/04</u> . |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I in the reply filed on June 29, 2004 is acknowledged.

The traversal is on the ground(s) that the "computer readable medium claims of Group IV clearly do not have a separate utility outside of the practice of the method claims of Group 1" (see page 2 of the Election filed June 29, 2004). This is not found persuasive because as mentioned in the restriction requirement mailed June 3, 2004, the combination as claimed does not require the particulars of the subcombination as claimed because the molding process can be practiced by hand without the need of a computer readable medium. Further, the subcombination has separate utility such as a simple computer readable medium to be used in a computer system to store data and not to control a molding process because the claimed instructions are not directed to the process steps, but rather the claimed method is directed to the process steps.

The requirement is still deemed proper and is therefore made FINAL.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The following title is suggested: "Method for Molding Composite Structures".

3. The abstract of the disclosure is objected to because a patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. The abstract should include a brief description of a method for molding composite structures including the most relevant process steps. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 11, 51-54 and 59-61 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999). The term "curing" in claims 11, 51 and 59-61 is used by the claim to mean "curing of a thermoplastic material", while the accepted meaning is "curing of a thermosetting material." The term is indefinite because the specification does not clearly redefine the term.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-2 and 15-17 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 1 005 978 A2.

EP 1 005 978 A2 teaches the claimed process of making a composite structure including, providing a sandwich structure having an internal honeycomb core (2) and external fibrous sheets (4) that are attached to said honeycomb core by adhesive sheets (3), placing said sandwich structure in a mold, injecting a resin into said mold to impregnate said external fibrous sheets (4) and curing said resin under conditions of heat, pressure and vacuum to form said composite structure (see page 3, paragraph [0012] and page 4, paragraphs [0021]-[0025]).

8. Claims 1-2, 4-5 and 15-17 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 0 786 330 A2.

EP 0 786 330 A2 teaches the claimed process of making a composite structure including, providing a sandwich structure having an internal honeycomb core (1) and external fibrous sheets (4) that are attached to said honeycomb core by adhesive sheets (2) and thermoplastic barrier film (3), placing said sandwich structure in a mold, injecting a resin into said mold to

impregnate said external fibrous sheets (4) and curing said resin under conditions of heat, pressure and vacuum to form said composite structure (see page 5 lines 1-10 and Figure 1).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-5, 12, 14-21, 45-46, 57-58 and 62-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abbott (US Patent No. 6,638,466 B1) in view of EP 0 786 330 A2.

Abbott ('466) teaches the basic claimed process of making a composite structure including, wrapping a plurality of mandrels (65, 66, 68) with a dry, fibrous material to form a wrapped mandrel, placing said wrapped mandrel in a mold, injecting a resin into said mold to impregnate said dry, fibrous material and curing said resin under conditions of heat, pressure and vacuum to form said composite structure (see col. 10, lines 36-43 and col. 16, lines 28 through col. 17, line 20). Further, it is noted that Abbott ('466) teaches the use of honeycomb core in a pre-preg arrangement (see col. 20, lines 22-30).

Regarding claim 1-2, 4-5, 45 although Abbott ('466) teaches a honeycomb core, Abbott ('466) does not teach a sealed honeycomb sandwich structure having a thermoplastic barrier layer and an adhesive layer. EP 0 786 330 A2 teaches a process of making a composite structure including, providing a sandwich structure having an internal honeycomb core (1) and external

fibrous sheets (4) that are attached to said honeycomb core by adhesive sheets (2) and thermoplastic barrier film (3), placing said sandwich structure in a mold, injecting a resin into said mold to impregnate said external fibrous sheets (4) and curing said resin under conditions of heat, pressure and vacuum to form said composite structure (see page 5 lines 1-10 and Figure 1). Therefore, it would have been obvious for one of ordinary skill in the art to have provided the sandwich structure of EP 0 786 330 A2 in the structure obtained by the process of Abbott ('466) because, Abbott ('466) specifically suggests the use of honeycomb core and also because, EP 0 786 330 A2 teaches that such a structure provides for an improved product. Furthermore, it is noted that both references teach similar end-products and materials and as such require similar functioning characteristics.

In regard to claims 3 and 46, Abbott ('466) teaches a stack of material that does not include a core and a material stack that includes a core, hence Abbott ('466) teaches a material stack having a core or not having a core, depending on the desired structure.

Specifically regarding claim 12, Abbott ('466) teaches an external mold tool (60) and internal mandrel tools (65, 66, 68) (see col. 10, lines 14-35).

Regarding claims 14 and 57-58, Abbott ('466) teaches a non-stick layer between the mandrel and the fibrous reinforcement (see col. 10, lines 35-43). Further regarding claim 58, Abbott ('466) teaches placing the wrapped mandrels in the external mold tool (60) (see col. 10, lines 14-35).

In regard to claims 15-17 and 62-63, Abbott ('466) teaches curing under conditions of heat, pressure and vacuum to form said composite structure (see col. 10, lines 36-43 and col. 16, lines 28 through col. 17, line 20).

Specifically regarding claims 18-21 and 64-66, Abbott ('466) teaches that said composite structure is an aircraft wing structure (full span and semi-span) (see col. 2, lines 50-65). It is submitted that an aircraft wing must allow laminar flow of air over its surface in order to function as an aircraft wing.

11. Claims 6-8, 11, 47-52 and 59-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abbott (US Patent No. 6,638,466 B1) in view of EP 0 786 330 A2 and in further view of EP 1 005 978 A2.

Abbott ('466) in view of EP 0 786 330 A2 teach the basic claimed process as described above.

Regarding claims 6 and 47, Abbott ('466) in view of EP 0 786 330 A2 do not teach a support layer between said honeycomb core and said adhesive layer. EP 1 005 978 A2 teaches a process of making a composite structure including, providing a sandwich structure having an internal honeycomb core (2) and external fibrous sheets (4) that are attached to said honeycomb core by opposing adhesive sheets (3), placing said sandwich structure in a mold, injecting a resin into said mold to impregnate said external fibrous sheets (4) and curing said resin under conditions of heat, pressure and vacuum to form said composite structure (see page 3, paragraph [0012] and page 4, paragraphs [0021]-[0025]). Further, EP 1 005 978 A2 teaches that said opposing adhesive sheets (3) include a layer (3a) that acts as a support layer (see paragraphs

[0016]-[0018]). Therefore, it would have been obvious for one of ordinary skill in the art to have provided a support layer as taught by EP 1 005 978 A2 in the composite structure obtained by the process of Abbott ('466) in view of EP 0 786 330 A2 because, EP 1 005 978 A2 teaches that such a support layer provides for an improved product by controlling the flow of resin into the honeycomb cells, hence providing for an improved product.

In regard to claims 7-8 and 52, Abbott ('466) teaches a multi-directional fibered material (see col. 10, lines 8-12). It is submitted that multi-directional fibrous sheets includes a specified direction of the fibers.

Regarding claims 11 and 51, EP 0 786 330 A2 teaches curing of the thermoplastic barrier layer in order to form a sealed honeycomb structure. Therefore, it would have been obvious for one of ordinary skill in the art to have cured the thermoplastic barrier layer as taught by EP 0 786 330 A2 in the structure obtained by the process of Abbott ('466) in view of EP 1 005 978 A2 because, Abbott ('466) specifically suggests the use of honeycomb core and also because, EP 0 786 330 A2 teaches that such a structure provides for an improved product by forming a sealed honeycomb structure. Furthermore, it is noted that all references teach similar end-products and materials and as such require similar functioning characteristics.

In regard to claims 48-50, EP 0 786 330 A2 teaches a process of making a composite structure including, providing a sandwich structure having an internal honeycomb core (1) and opposing external fibrous sheets (4) that are attached to said honeycomb core by opposing adhesive sheets (2) and an opposing thermoplastic barrier film (3), placing said sandwich structure in a mold, injecting a resin into said mold to impregnate said external fibrous sheets (4)

and curing said resin under conditions of heat, pressure and vacuum to form said composite structure (see page 5 lines 1-10 and Figure 1). Therefore, it would have been obvious for one of ordinary skill in the art to have provided the sandwich structure of EP 0 786 330 A2 in the structure obtained by the process of Abbott ('466) in view of EP 1 005 978 A2 because, Abbott ('466) specifically suggests the use of honeycomb core and also because, EP 0 786 330 A2 teaches that such a structure provides for an improved product. Furthermore, it is noted that all references teach similar end-products and materials and as such require similar functioning characteristics.

Specifically regarding claims 59-60, EP 0 786 330 A2 teaches curing of the thermoplastic barrier layer at or above the resin curing temperature (see page 4, line 24). Therefore, it would have been obvious for one of ordinary skill in the art to have cured the thermoplastic barrier layer at or above the resin curing temperature as taught by EP 0 786 330 A2 in the structure obtained by the process of Abbott ('466) in view of EP 1 005 978 A2 because, Abbott ('466) specifically suggests the use of honeycomb core and also because, EP 0 786 330 A2 teaches that such a structure provides for an improved product. Furthermore, it is noted that all references teach similar end-products and materials and as such require similar functioning characteristics.

Regarding claim 61, EP 0 786 330 A2 teaches curing of the thermoplastic barrier layer at a temperature of 25-800 °F (see page 3, line 22). Further, EP 1 005 978 A2 teaches an epoxy RTM resin curing temperature of 356 °F (180 °C) (see page 4, paragraph [0025]). Hence, it is submitted that Abbott ('466) in view of EP 1 005 978 A2 and in further view of EP 1 005 978

A2 teaches combinations of materials in which the thermoplastic barrier layer cures at a temperature below the resin curing temperature.

12. Claims 6-7 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0 786 330 A2 in view of EP 1 005 978 A2.

EP 0 786 330 A2 teaches the basic claimed process as described above.

Regarding claim 6, EP 0 786 330 A2 does not teach a support layer between said honeycomb core and said adhesive layer. EP 1 005 978 A2 teaches a process of making a composite structure including, providing a sandwich structure having an internal honeycomb core (2) and external fibrous sheets (4) that are attached to said honeycomb core by adhesive sheets (3), placing said sandwich structure in a mold, injecting a resin into said mold to impregnate said external fibrous sheets (4) and curing said resin under conditions of heat, pressure and vacuum to form said composite structure (see page 3, paragraph [0012] and page 4, paragraphs [0021]-[0025]). Further, EP 1 005 978 A2 teaches that said adhesive sheets (3) include a layer (3a) that acts as a support layer (see paragraphs [0016]-[0018]). Therefore, it would have been obvious for one of ordinary skill in the art to have provided a support layer as taught by EP 1 005 978 A2 in the composite structure obtained by the process of EP 0 786 330 A2 because, EP 1 005 978 A2 teaches that such a support layer provides for an improved product by controlling the flow of resin into the honeycomb cells, hence providing for an improved product.

In regard to claim 7, EP 0 786 330 A2 teaches external fibrous sheets (4) that are attached to said honeycomb core by adhesive sheets (2).

Regarding claim 11, EP 0 786 330 A2 teaches curing of the thermoplastic barrier layer in order to form a sealed honeycomb structure.

13. Claims 9-10 and 53-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abbott (US Patent No. 6,638,466 B1) in view of EP 0 786 330 A2 and in further view of EP 1 005 978 A2 and Lunde (US Patent No. 6,692,681 B1).

Abbott ('466) in view of EP 0 786 330 A2 and in further view of EP 1 005 978 A2 teach the basic claimed process as described above.

Regarding claims 9-10 and 53-55, Abbott ('466) in view of EP 0 786 330 A2 and in further view of EP 1 005 978 A2 do not teach reducing the modification of fiber orientation during resin injection by using an internal elastomeric tool. Lunde ('681) teaches a process for molding a composite part including, providing a bladder-covered mandrel (elastomeric tool), wrapping said bladder-covered mandrel with a fiber reinforcement layer to form a wrapped mandrel, placing said wrapped mandrel in a mold, compressing said fiber reinforcement layer against the inner wall of said mold by applying an internal pressure (altering the shape and internal pressure of the inner mold) to said bladder and curing said fiber reinforcement layer under conditions of heat, pressure and vacuum to form a composite part (see Abstract). Further, Lunde ('681) teaches that said fiber reinforcement layer includes a sandwich structure having a honeycomb core and fibrous sheets (see col. 7, lines 43-54). Furthermore, Lunde ('681) teaches that the expansion of the bladder and the orientation of the fiber reinforcement material allows for wanted motion to occur between the fibers such that stretching and residual stresses do not occur (see col. 17, line 36 through col. 18, line 6). Therefore, it would have been obvious for one

of ordinary skill in the art to have provided a bladder-covered mandrel as taught by Lunde ('681) in the process of Abbott ('466) in view of EP 0 786 330 A2 and in further view of EP 1 005 978 A2 because, Lunde ('681) specifically teaches that the expansion of the bladder and the orientation of the fiber reinforcement material allows for wanted motion to occur between the fibers such that stretching and residual stresses do not occur, hence providing for an improved product and also because all references teach similar materials and end-products.

14. Claims 9 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abbott (US Patent No. 6,638,466 B1) in view of EP 0 786 330 A2 and in further view of EP 1 005 978 A2 and Jones *et al.* (US Patent No. 5,023,041).

Abbott ('466) in view of EP 0 786 330 A2 and in further view of EP 1 005 978 A2 teach the basic claimed process as described above.

Regarding claims 9 and 53, Abbott ('466) in view of EP 0 786 330 A2 and in further view of EP 1 005 978 A2 do not teach reducing the modification of fiber orientation during resin injection. Jones *et al.* ('041) teach a resin transfer molding process in which the temperature and pressure are carefully controlled in order to control the viscosity and flow of the resin matrix, hence controlling unwanted motion of the reinforcing fibers (see col. 1, lines 25-35). Therefore, it would have been obvious for one of ordinary skill in the art to have carefully controlled the temperature and pressure as taught by Jones *et al.* ('041) in the resin transfer molding process of Abbott ('466) in view of EP 0 786 330 A2 and in further view of EP 1 005 978 A2 because, Jones *et al.* ('041) specifically teach that temperature and pressure control results in controlling

unwanted motion of the reinforcing fibers, hence providing for an improved product and also because all references teach similar end-products and processes.

15. Claims 54-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abbott (US Patent No. 6,638,466 B1) in view of EP 0 786 330 A2 and in further view of EP 1 005 978 A2, Jones *et al.* (US Patent No. 5,023,041) and Lunde (US Patent No. 6,692,681 B1).

Abbott ('466) in view of EP 0 786 330 A2 and in further view of EP 1 005 978 A2 and Jones *et al.* ('041) teach the basic claimed process as described above.

Regarding claims 54-55, Abbott ('466) in view of EP 0 786 330 A2 and in further view of EP 1 005 978 A2 and Jones *et al.* ('041) do not teach an internal elastomeric tool. Lunde ('681) teaches a process for molding a composite part including, providing a bladder-covered mandrel (elastomeric tool), wrapping said bladder-covered mandrel with a fiber reinforcement layer to form a wrapped mandrel, placing said wrapped mandrel in a mold, compressing said fiber reinforcement layer against the inner wall of said mold by applying an internal pressure (altering the shape and internal pressure of the inner mold) to said bladder and curing said fiber reinforcement layer under conditions of heat, pressure and vacuum to form a composite part (see Abstract). Further, Lunde ('681) teaches that said fiber reinforcement layer includes a sandwich structure having a honeycomb core and fibrous sheets (see col. 7, lines 43-54). Furthermore, Lunde ('681) teaches that the expansion of the bladder and the orientation of the fiber reinforcement material allows for wanted motion to occur between the fibers such that stretching and residual stresses do not occur (see col. 17, line 36 through col. 18, line 6). Therefore, it would have been obvious for one of ordinary skill in the art to have provided a bladder-covered

mandrel as taught by Lunde ('681) in the process of Abbott ('466) in view of EP 0 786 330 A2 and in further view of EP 1 005 978 A2 and Jones *et al.* ('041) because, Lunde ('681) specifically teaches that the expansion of the bladder and the orientation of the fiber reinforcement material allows for wanted motion to occur between the fibers such that stretching and residual stresses do not occur, hence providing for an improved product and also because all references teach similar materials and end-products.

Regarding claim 56, Jones *et al.* ('041) teach a resin transfer molding process in which the temperature and internal pressure are carefully controlled in order to control the viscosity and flow of the resin matrix, hence controlling resin flow rate (see col. 1, lines 25-55). Therefore, it would have been obvious for one of ordinary skill in the art to have carefully controlled the temperature and internal pressure as taught by Jones *et al.* ('041) in the resin transfer molding process of Abbott ('466) in view of EP 0 786 330 A2 and in further view of EP 1 005 978 A2 and Lunde ('681) because, Jones *et al.* ('041) specifically teach that temperature and pressure control results in controlling the resin flow rate, which in turn controls unwanted motion of the reinforcing fibers, hence providing for an improved product and also because all references teach similar end-products and processes.

16. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Abbott (US Patent No. 6,638,466 B1) in view of EP 0 786 330 A2 and in further view of Lunde (US Patent No. 6,692,681 B1).

Abbott ('466) in view of EP 0 786 330 A2 teach the basic claimed process as described above.

Regarding claim 13, Abbott ('466) in view of EP 0 786 330 A2 do not teach an internal elastomeric tool. Lunde ('681) teaches a process for molding a composite part including, providing a bladder-covered mandrel (elastomeric tool), wrapping said bladder-covered mandrel with a fiber reinforcement layer to form a wrapped mandrel, placing said wrapped mandrel in a mold, compressing said fiber reinforcement layer against the inner wall of said mold by applying an internal pressure (altering the shape and internal pressure of the inner mold) to said bladder and curing said fiber reinforcement layer under conditions of heat, pressure and vacuum to form a composite part (see Abstract). Further, Lunde ('681) teaches that said fiber reinforcement layer includes a sandwich structure having a honeycomb core and fibrous sheets (see col. 7, lines 43-54). Furthermore, Lunde ('681) teaches that the expansion of the bladder and the orientation of the fiber reinforcement material allows for wanted motion to occur between the fibers such that stretching and residual stresses do not occur (see col. 17, line 36 through col. 18, line 6). Therefore, it would have been obvious for one of ordinary skill in the art to have provided a bladder-covered mandrel as taught by Lunde ('681) in the process of Abbott ('466) in view of EP 0 786 330 A2 because, Lunde ('681) specifically teaches that the expansion of the bladder and the orientation of the fiber reinforcement material allows for wanted motion to occur between the fibers such that stretching and residual stresses do not occur, hence providing for an improved product and also because all references teach similar materials and end-products.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stefan Staicovici, Ph.D. whose telephone number is (571) 272-1208. The examiner can normally be reached on Monday-Friday 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael P. Colaianni, can be reached on (571) 272-1196. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Stefan Staicovici, PhD



Primary Examiner

9/30/04

AU 1732

September 30, 2004